

Commentary

Asbestos in the Workplace and the Community

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Information developed by Newhouse in a survey of an asbestos factory in London suggests that the risk of mesothelial tumors is strongly related to both the degree and the length of exposure to asbestos dust.

The present paper presents extracts from the paper of Newhouse (1) and offers some commentary. Studies have been made of an East London asbestos factory (2, 3). This factory, a heavy user of crocidolite asbestos, as well as of amosite and chrysotile, kept a unique file of all employees. These records gave both personal details and details of jobs while employed. A cohort of male workers who started work at the factory any time between the implementation of the Asbestos Regulations of 1931 in April 1933 and the closure of the factory in 1968, and a smaller cohort of women who were first employed between 1936 and 1942, were established. The war-time period was chosen for the women because regulations during the war simplified the difficult task of establishing whether women who had changed their name on marriage were alive or dead. The mortality experienced by the workers was assessed by comparing the number of observed deaths with the number of deaths that would be expected in a similar population of England and Wales using the man-years method of Case and Lea (4). Degree of dust exposure was categorized either as low-moderate (nonproduction workers and those working with low proportions of asbestos in the product were in this category) or as severe (a category which described openers, dis-

integrators and production workers in both scheduled and unscheduled jobs).

The analysis of mortality has now been extended to March 31, 1970.

The number of deaths from pleural and peritoneal tumors in each exposure category was tabulated. By relating the number of deaths due to these tumors to the number of years at risk in the cohort, excluding the period before the tenth year during which there is no observable excess mortality from any cause, a mesothelioma rate was obtained (Table 1). It will be seen that the rate increases both with severity of exposure and with length of exposure in the job (Figs. 1-3).

These figures suggest that the risk of mesothelial tumors is strongly related to both the degree and the length of exposure to asbestos dust, and that although there may be no critical level where the cancer risk can be confidently said to be eliminated, strict control of factory hygiene and dust suppression may minimize the risk.

The evidence that asbestos dust can cause biological effects in the community rests on, firstly, the development of mesothelial tumors in persons with no occupational or other exposure to asbestos except residence near a source of asbestos dust, such as mine, factory or dockyard, secondly, the demonstration of asbestos bodies in the lungs of members of the general public, and thirdly, radiological

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Table 1. Number of deaths n and mesothelioma rate r per 100,000 subject-years(sy) after more than 10 years' follow up.

Length of employment		Low-moderate			Exposure Severe			Laggers		
		n	sy	r	n	sy	r	n	sy	r
Men	<2	2	7899	25	8	11193	71	4	2550	157
	>2	5	4926	102	9	5851	154	4	1530	261
Women	<2	0	931	—	6	7176	84	—	—	—
	>2	0	640	—	5	3538	141	—	—	—

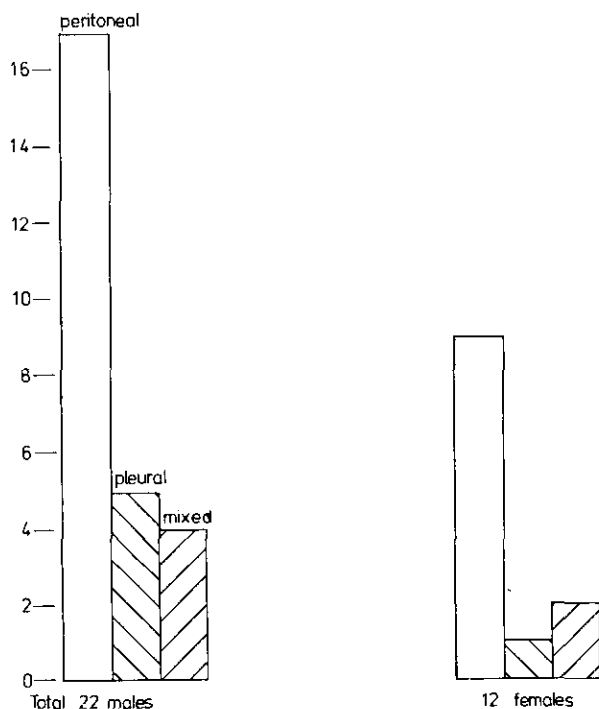


FIGURE 1. Mesothelioma at post mortem.

evidence in the community living in the vicinity of a mine or large commercial user of asbestos of those pleural changes which are commonly associated with asbestos exposure.

Eleven of Wagner's (5) series of 33 patients with mesothelial tumors in the Cape Province of South Africa had had no occupational exposure, but had been born and lived some years on the asbestos mine fields. Among the London Hospital series of 76 cases (6), 11 (significantly more than in the control series) had had no occupational or other contact with asbestos but had lived within half a mile of an asbestos factory. In these instances, exposure occurred

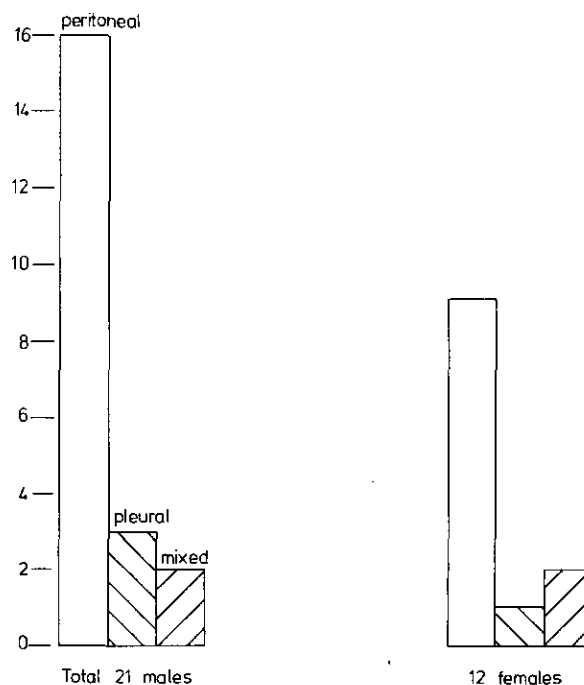


FIGURE 2. Mesothelioma with pulmonary asbestosis at post mortem.



FIGURE 3. Mesothelioma with pulmonary asbestosis in life.

usually more than 30 yr before death, and it may have been considerable. A patient suffering from a peritoneal mesothelioma interviewed

recently, recalled playing with handfuls of asbestos on waste ground near a factory as a small boy, some forty years before he developed his tumor.

A recent report of an Advisory Committee on Asbestos Cancers (7) states that at present there is no evidence of lung damage from fibrosis by the low levels of asbestos exposure encountered by the general public in urban areas. Nor do they find evidence for an increased risk of cancer resulting from asbestos contamination of water, beverages, or food.

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